Information Exchange Package Documentation (IEPD) Process

National Information Exchange Model

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Global Justice
Information
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**United States
Department of Justice**

In This Section Students Will Learn To

- What is IEPD
- Requirements of developing a NIEM IEPD
  - Business Requirements
  - Artifacts and Metadata
- Define the principals underlying the development of an IEPD
- Understand the IEPD process
- Become acquainted with the tools that support justice community and open standards

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What is IEPD

- Information Exchange Package (IEP)
  - Represents a set of data that is transmitted for a specific business purpose.
  - It is the actual XML instance that delivers the payload or information.
- Information Exchange Package Documentation
  - (IEPD or IEP Documentation)
  - Is a collection of artifacts that describe structure & content of an Information Exchange Package.
- It does *not* specify other interface layers (such as Web services)

Purpose

- To identify & describe a common set of artifacts to document the structure and content of a NIEM-conformant XML instance used in an information exchange to meet a specific business purpose
- Documents the IEPD process, including
  - Business requirements of a data exchange
  - Business rules used to choose appropriate parts of the NIEM
  - Extensions to fit local requirements
- Follows a standard format outlined at www.niem.gov

NIEM IEPD Business Requirements

- Reuse IEPDs within and across domains
  - Encourage authors to share IEPDs with others (register)
  - Encourage users to reuse and adapt IEPDs (search and discover)

- Semi automate IEPD creation, processing, and integration
  - Simple and structured to allow semi automation

- Enhance IEPD consistency and readability community wide
  - Must be human-readable and machine-readable
  - Must have consistent format for identifying and defining artifacts

- Facilitate IEPD interoperability
  - Must be portable, self-contained, and self-documented

NIEM IEPD Business Requirements (cont.)

- IEPDs capture business context
  - Purpose, business requirements, who uses, when and how to use

- Facilitate IEPD life-cycle management
  - IEPD build to specific NIEM release
  - Build IEPD so that it's easy to migrate to new release

- Capture requirements for new or modification to existing NIEM content
  - Use of data mapping tools

NIEM IEPD Artifacts and Metadata

- IEPD Artifacts & Metadata
  - Should have **all** meaningful artifacts and metadata
  - Other material (user manual etc.) can be listed as reference material
  - Only a minimal set should be mandatory

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NIEM IEPD Artifacts

Table 1. IEPD Artifacts			
IEPD Artifact	**Description**	**File Type Examples**	**Req / Option**
3.1 Exchange Files (normative XML)			
Subset schema	Subset of the full NIEM schema—a compressed directory of schemas to distinguish from other schema sets.	xsd	R
Wantlist	User requirements—distinguishes user data components required by the user from components that they depend on for conformance. Generated by and uploaded to the Schema Subset Generation Tool (SSGT). This is an open specification and the SSGT is not required to create a wantlist, though it is easier.	xml	R
Exchange schema	Base document schema that defines the XML root element and is generally named after the IEPD itself. Also known as the document schema, reference schema, or root schema.	xsd	R
Constraint schema	Constraints for separate constraint validation path—a compressed directory of schemas to distinguish from other schema sets.	xsd	O
Extension schema	Specification for extended components—separate local namespace of components not contained in NIEM.	xsd	O
Sample XML instance	Example instance—may be multiple and may reference optional stylesheet.	xml	O
Sample stylesheet	Example stylesheet for display of instances, which may be multiple.	xsl	O

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NIEM IEPD Artifacts (cont.)

3.2 Documentation			
Master documentation	May include purpose, business requirements, what, when, why, how to, etc. Guidelines are needed for master documentation content, and the following indented items are possible documents that can be contained within the master documentation or broken out as individual files.	txt, doc	R
Business requirements	Itemized descriptions that may also contain business rules.	txt, doc	O
MOUs	Memorandums of understanding among participating agencies.	txt, doc	O
Endorsement letters	Documentation from professional or governmental organizations that confirm support. Refer to *Endorsement* in metadata.	txt, doc	O
Methodology and tools	Used to build IEPD and may contain URLs or references to tools, methodology, or documentation.	txt, doc	O
Testing and conformance	Description and results of validation and conformance testing performed—may include testing output or products.	txt, doc	O
Domain model	Domain model in standard open format (xmi, vsd, zargo) and standard open graphic (jpg, pdf, etc.) that is likely a Unified Modeling Language (UML) model.	vsd, xmi, zargo, jpg, pdf, etc.	O
Use case model	Use case diagram in standard open format and standard graphic, likely UML.	vsd, xmi, zargo, jpg, pdf, etc.	O
Business rules	May be (1) plain or structured English, (2) written into master documentation, (3) Schematron or other formal business rule language, or (4) generated by a development tool.	xml, txt, doc	O

NIEM IEPD Metadata

Table 2. IEPD Metadata		
Metadata item	**Description**	**Req / Option**
Descriptive		
URI	Universal Identifier—each IEPD version will have a distinct URI. NIEM will provide a suggested strategy for URIs, but use of strategy is NOT mandatory.	R
Name	Title of this IEPD (e.g., Amber Alert, Prosecutor Arrest Warrant).	R
Summary	Brief summary of this IEPD for short display purposes—maximum of 160 characters including spaces.	R
Description	Narrative description of this IEPD—may contain as much detail as you think useful to those with a potential interest in this IEPD.	O
Web site	URL of Web site where this IEPD and related artifacts (e.g., XML schema, documentation, mapping spreadsheets) are posted.	O
Security	Security label to indicate treatment/distribution of this IEPD; e.g., For Official Use Only (FOUO), classified, sensitive but unclassified (SBU), public. The default is public, unless otherwise noted.	R
Change log data (must be consistent with change log artifact)		
Creation date	Project start date—YYYY-MM that planning or work on this IEPD started. Do NOT confuse with date you submitted this IEPD information.	R
Version	Version of this IEPD.	R
NIEM version	NIEM version used for this IEPD.	R

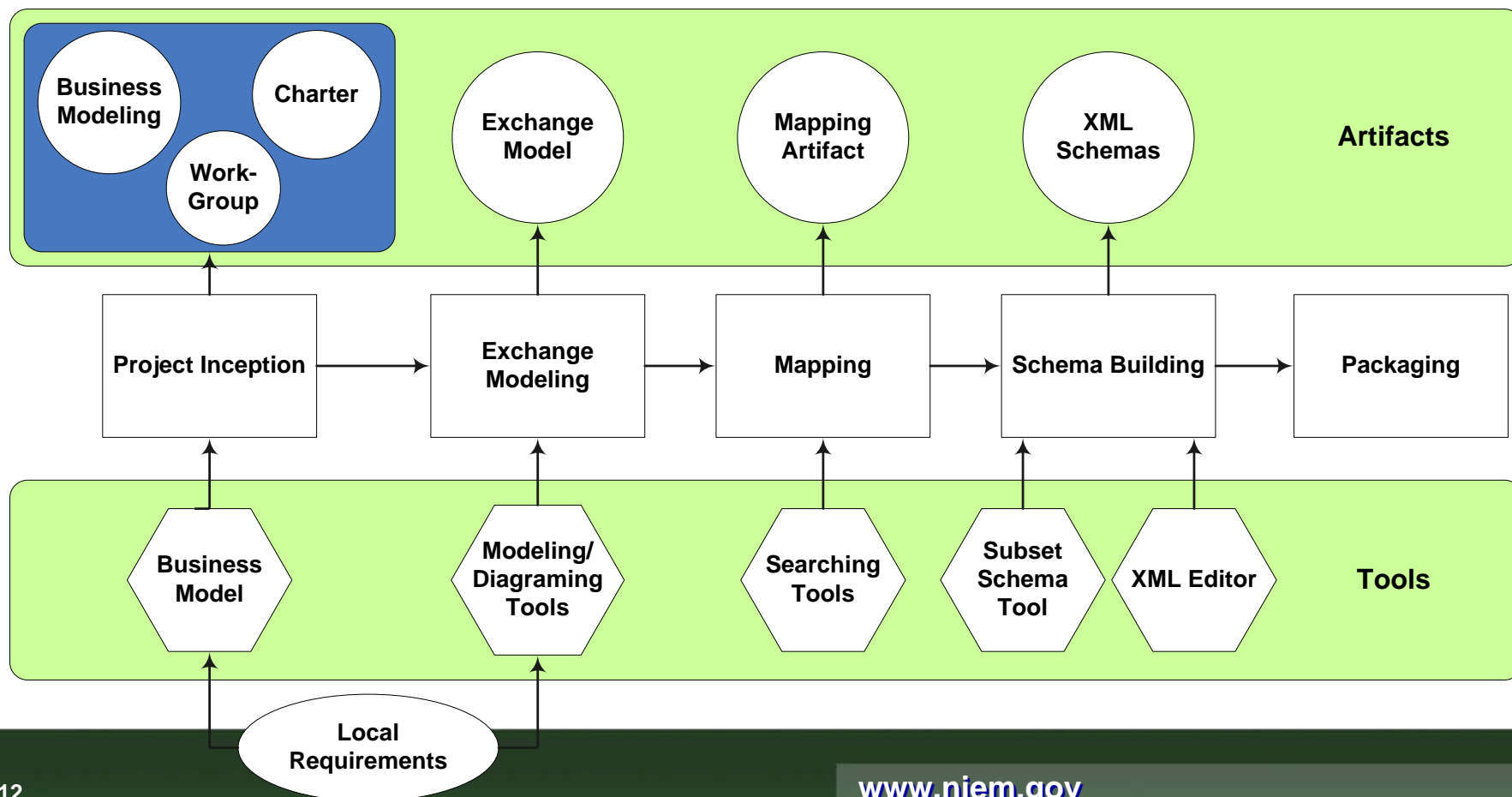## Advantages of Formal IEPD Specifications

- Ensure consistency across IEPDs

- Capture business context that facilitates search and discovery of NIEM components and IEPDs

- Machine readable and process-able to automate support for the IEPD Life Cycle

- Encourage and facilitate commercial tool development and value added capabilities

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IEPD Process

Artifacts

- Business Modeling
- Charter
- Work-Group
- Exchange Model
- Mapping Artifact
- XML Schemas

Project Inception → Exchange Modeling → Mapping → Schema Building → Packaging

Tools

- Business Model
- Modeling/ Diagraming Tools
- Searching Tools
- Subset Schema Tool
- XML Editor

Local Requirements

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Work Group

- Modeling cannot be done by
  - Technical folks alone
  - Business folks alone
- Modeling should be a partnership between developers and business
- Include business reps from **all** sides of the exchange
- Skilled, experienced facilitator is important
- Ideal size: 7, +/- 2

Work Group—Technical Member Skills

- Understanding of
  - NIEM
    - Source of good ideas for exchange model
    - Think ahead to mapping
  - Data availability and needs at exchange endpoints
  - Basic exchange modeling concepts (including O/O design)

Work Group—Business Member Skills

- Understanding of
  - Business processes (triggering and subsequent processes)
  - Semantic meaning of data
- Ability to "think outside the box"
  - As-is processes versus to-be processes
  - Openness to change semantic concepts to align with NIEM

Work Group—Facilitator Skills

- Organization and project management
- Understanding of
  - NIEM
  - Exchange modeling
    - UML
    - Object-oriented design
- Some understanding of the domain (the more, the better)
- Awareness of national reference material

Project Planning

- Obviously depends on the exchange
- Rough guidelines
  - Exchange modeling (face-to-face, 2–3 days)
  - Mapping (face-to-face for 1–2 days, another 1–2 days remote)
  - Schema building (facilitator or tech member(s) only, 2–3 days)
  - Packaging (1 day)

Source Documents

- Gather paper or electronic source documents that you are exchanging
- Extract elements required for the exchange
- Redact confidential information
- Look at prior standardization efforts